

IN THE CLAIMS:

Please amend the claims as follows:

1-15. (Canceled)

16. (Original) A method for locating a target region in a volumetric image set, the image set comprising a plurality of voxels, each of the plurality of voxels to be assigned to at least one target class or at least one background class, the method comprising:

- (a) calculating an initial target class statistical descriptor for the at least one target class;
- (b) calculating an initial background statistical descriptor for the at least one background class;
- (c) assigning a class to each of the plurality of voxels for which a discriminant calculated from a class statistical descriptor for the class is a minimum;
- (d) reestimating a background statistical descriptor for the at least one background class; and
- (e) locating the target region to include each of the voxels which have been assigned to the at least one target class.

17. (Original) The method of claim 16, wherein steps (c) and (d) are repeated until a stable solution is achieved, and then step (e) is performed.

18-31. (Canceled)

32. (Original) A system for locating a target region in a volumetric image set, the image set comprising a plurality of voxels, each of the plurality of voxels to be assigned to at least one target class or at least one background class, the system comprising:

an input device for receiving the volumetric image set; and

a processor, in communication with the input device, for:

(a) calculating an initial target class statistical descriptor for the at least one target class;

(b) calculating an initial background statistical descriptor for the at least one background class;

(c) assigning a class to each of the plurality of voxels for which a discriminant calculated from a class mean and a class covariance for the class is a minimum;

(d) reestimating a background statistical descriptor for the at least one background class; and

(e) locating the target region to include each of the voxels which have been assigned to the at least one target class.

33. (Original) The system of claim 32, wherein the processor repeats steps (c) and (d) until a stable solution is achieved and then performs step (e).